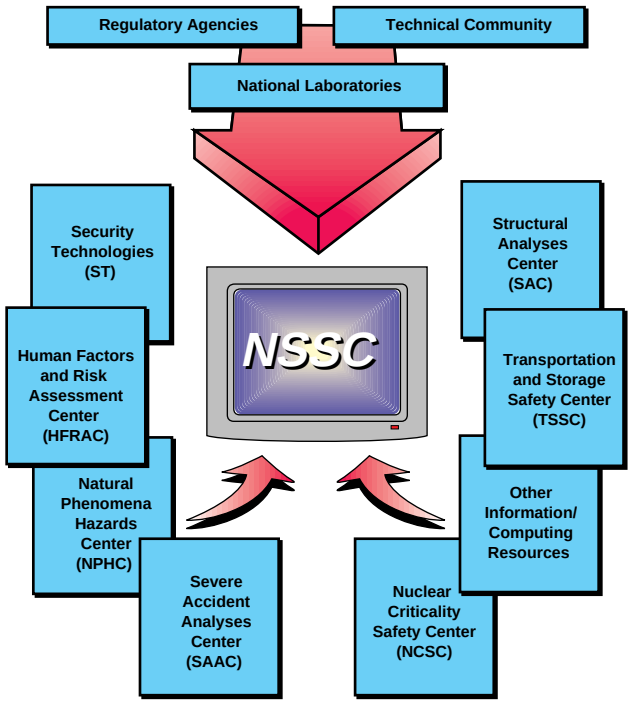
Nuclear Systems Safety Center

Workstation-based analysis Center enables users to navigate complex computer networks

The Nuclear Systems Safety Center (NSSC) is a collection of high-performance workstations on which various applications and data bases reside. They are used by Fission Energy and Systems Safety engineers and analysts at Lawrence Livermore National Laboratory in support of other government agencies. This distributed environment is being configured such that, upon logging into NSSC, the user can enter one of the following (sub)centers and use the regulatory support codes and data bases it contains.

Natural Phenomena Hazards Center

The NPHC provides engineers and analysts with tools and data to characterize such natural phenomena as earthquakes, tornadoes, volcanoes, and floods. These tools help mitigate the tremendous damage that can be caused to civil engineering structures, mechanical components, systems, lifelines, and communities.



Structural Analyses Center

The SAC provides engineers with a host of programs to analyze how a structure will respond under mechanical, thermal, or combination loadings. Programs range from linear-elastic to nonlinear, and from large-deformation to high-velocity impact simulations. They provide analysts with the most advanced analytical capabilities available.

Nuclear Criticality Safety Center

Codes and information in NCSC permit analysts to determine conditions for safe handling of fissile materials, for example, uranium and plutonium. Monte Carlo computer codes, such as COG, MCNP, and KENO, can predict when a sustained chain reaction can occur. They can also calculate how materials shield the environment from radiation.

Human Factors & Risk Assessment Center

The HFRAC provides a systematic and coherent framework for answering questions of safety and reliability. The framework breaks down the barriers that typically exist between system designers and operators — barriers that can lead to unforeseen human errors. The human factors and risk assessment tools in this Center are designed to produce a logical, integrated, and disciplined technical basis to support decision making.

Severe Accident Analyses Center

The SAAC provides the capability for performing independent evaluations of the behavior of reactor systems during severe accident conditions, for example, those that occurred at Chernobyl and at Three-Mile Island. These evaluations make use of tools, such as advanced nuclear regulatory and nuclear industry severe accident analyses.

Transportation & Storage Safety Center

The TSSC provides information resources for the design and evaluation of packages for transporting or storing radioactive materials. These resources include state-of-the-art computer codes, data bases, and reference documents, such as federal regulations and regulatory guides.

Multimedia user interface

A web-based multimedia interface is being developed to help the user navigate to the requested code or data base. The interface will connect the user to the requested code or data base, or provide information on how to use the specified code / data base.

The web-browser as a common software interface will enable the user to move around Internet to other national laboratories or universities where additional regulatory support applications or data bases reside.

Contact

Barbara C. Davis
Phone: (510) 423-2372
Fax: (510) 422-9913
E-mail: bcdavis@llnl.gov
Mail code: L-632